## REMARKS/ARGUMENTS

Reconsideration of the present application, as amended, is respectfully requested.

The January 14, 2004 Office Action and the Examiner's comments have been carefully considered. In response, claims are amended and remarks are set forth below in a sincere effort to place the present application in form for allowance. The amendments are supported by the application as originally filed. Therefore, no new matter is added.

### CLAIMS

Claims 2-11 and 13-19 are amended to place the claims in better form for consideration by the Examiner and to be in better form for allowance. The Amendments are not related to the patentability of claims 2-11 and 13-19.

### PRIOR ART REJECTIONS

In the Office Action claims 1, 2 and 12 are rejected under 35 USC 102(b) as being anticipated by USP 5,117,298 (Hirai). Claims 1, 3 and 12 are rejected under 35 USC 102(e) as being anticipated by USP 6,005,542 (Yoon). Claims 1 and 12 are rejected under 35 USC 102(e) as being anticipated by USP 6,362,803 (Tomomura et al.). Claims 1, 3-5, 7-14 and 16-19 are

rejected under 35 USC 102(e) as being anticipated by USP 6,078,303 (McKnight). Claims 1, 6, 12 and 15 are rejected under 35 USC 102(d) as being anticipated by USP 5,790,089 (Ono et al.).

In response, claims 1 and 12 are amended to more clearly define the present claimed invention over the cited references.

The present claimed invention as defined by amended claim 1 is directed to a liquid crystal display device including a liquid crystal display panel having a plurality of signal lines, a plurality of scanning lines, and a plurality of display pixels arrayed in a matrix and provided respectively near cross-points between the signal lines and the scanning lines through switching elements. The liquid crystal display device also includes a driver which supplies the plurality of signal lines with a display signal in a field period, and which supplies the plurality of scanning lines with a scanning signal, to apply the display signal to the plurality of display pixels. The driver includes means which supplies a predetermined initialization signal voltage to the signal line and supplies a first gate pulse as the scanning signal to the scanning line, thereby applying the initialization signal to the display pixel, and thereafter supplies the display signal to the signal line and supplies a second gate pulse as the scanning signal to the scanning line,

thereby applying the display signal to the display pixel, at least one signal application period set within the field period.

The drive control method according to amended claim 12 is for a liquid crystal display device which has a plurality of signal lines, a plurality of scanning lines, and a plurality of display pixels arrayed in a matrix and provided respectively near cross-points between the signal lines and the scanning lines through switching elements, and which supplies the plurality of signal lines with a display signal in a field period and supplies scanning signals to the plurality of scanning lines, to apply the display signal to the plurality of display pixels. The method includes the steps of providing at least one signal application period in the field period, applying an initialization signal to the display pixel, by supplying the initialization signal voltage to the signal line and supplying a first gate pulse as the scanning signal to the scanning line, and applying the display signal to the display pixels by supplying the display signal to the signal line and supplying a second gate pulse as the scanning signal to the scanning line after completion of applying the initialization signal voltage in the signal application period.

The liquid crystal display device and the drive control method according to amended claims 1 and 12 have a feature in which, during one signal application period within the field

period, a signal line is supplied with an initialization signal voltage and a scanning line is supplied with a first gate pulse, thereby applying an initialization signal voltage to a display pixel, and next, the signal line is supplied with a display signal and the scanning line is supplied with a second gate pulse, thereby applying a display signal to the display pixel (see claim 1, lines 12-20 and claim 12, lines 13-22).

USP 5,117,298 (Hirai) is directed to an active matrix liquid crystal display with reduced flickers, and more specifically to adjustment of the absolute value of the pixel application voltage, which inverses its polarity for each frame, when driving a TFD-LCD using inversion. Hirai discloses in Figs. 5A-5D and 7A-7D a structure concerning adjustment of the value of a data signal corresponding to a scan signal. The scan signal is applied to each display pixel only once for each frame, and in response thereto, the data signal is applied. Therefore, the scan signal taught in Hirai does not correspond to the first or second gate pulse of the present invention.

Since the scan signal does not correspond to the first or second gate pulse of the present invention, the data signal corresponding to the scan signal does not correspond to the initialization signal voltage of the present invention. Therefore, Hirai does not disclose the first or second gate pulse

applied to the scanning lines, or the initialization signal voltage applied to the signal lines, of the present claimed invention.

USP 6,005,542 (Yoon) is directed to a method for driving a thin film transistor liquid crystal display device using varied gate low levels, and more specifically to driving a TFT-LCD using line inversion. Yoon teaches at Figs. 2 and 3 a structure for varying, for each field, the low level of the gate signal voltage Vgate supplied to gate lines. The gate signal is applied to each display pixel only once for each frame. Therefore, the gate signal does not correspond to the first or second gate pulse of the present claimed invention.

Since the gate signal does not correspond to the first or second gate pulse of the present claimed invention, the data signal corresponding to the gate signal Vsig does not correspond to the initialization signal voltage of the present claimed invention. Therefore, Yoon does not disclose, teach or suggest the first or second gate pulse applied to the scanning lines, or the initialization signal voltage applied to the signal lines, of the present claimed invention.

USP 6,362,803 (Tomomura et al.) is directed to a liquid crystal display having adjustable effective voltage value for display, and more specifically to driving a simple matrix liquid

crystal display, which differs completely from driving the present claimed invention's liquid crystal display panel with switching elements. Tomomura et al. disclose with reference to Figs. 4A - 4D a structure for reducing unevenness in display by applying correction signals VC2 and VC4 to signal VCOM, which is supplied to the scanning electrodes. Since the scanning electrodes and the signal electrodes of Tomomura et al. do not correspond to the scanning lines and the signal lines of the present claimed invention. Moreover, the signal supplied to the scanning electrodes does not correspond to the gate pulses, including the first and second gate pulses, of the present invention, and the signal supplied to the signal electrodes does not correspond to the initialization signal voltage or display signal of the present claimed invention. Therefore, Tomomura et al. do not disclose, teach or suggest the first or second gate pulse applied to the scanning lines, or the initialization signal voltage applied to the signal lines, of the present claimed invention.

USP 6,078,303 (McKnight) is directed to a display system having electrode modulation to alter a state of an electro-optic layer, and more specially to driving a TFT-LCD. In Figs. 2C and 7A, McKnight discloses a structure wherein a period is provided before display of display data in each display period, and during

that period, a first control voltage that causes the liquid crystal application voltage to become equal to or greater than the black display voltage and causes the liquid crystal display to go into a non-display state is applied to the control electrode. The first control voltage corresponds partly to the initialization signal voltage of the present invention in the respect that the first control voltage is applied before the display signal voltage is applied. However, the initialization signal voltage of the present invention is supplied to the signal lines, while control voltage VCG is applied to the cover glass electrode (common electrode). Therefore, the first control voltage of McKnight differs from the initialization signal voltage of the present claimed invention.

McKnight does not disclose, teach or suggest the waveform of the scanning signal applied to the gate of the TFT of each display pixel, and does not disclose, teach or suggest a signal corresponding to the first or second gate pulse of the present claimed invention. Therefore, McKnight does not disclose, teach or suggest the first or second gate pulse applied to the scanning lines, or the initialization signal voltage applied to the signal lines, of the present claimed invention.

USP 5,790,089 (Ono et al.) is directed to a method for driving a liquid crystal panel having two terminal elements such

as an MIM (metal-insulator-metal element). Ono et al. disclose in Fig. 11 that white or black display is provided according to the difference between the signal supplied to the line electrodes and the signal supplied to the row electrodes during the selection period. The signal supplied to the line electrodes is a scanning signal that selects the display pixel of each line electrode, but is applied only once for each display period, and in response thereto, the display signal is applied to the row electrodes. Therefore, the scanning signal taught in Ono et al. does not correspond to the first or second gate pulse of the present claimed invention.

That is, the present claimed invention as defined by claims 1 and 12 is patentable over the cited references because the references do not disclose, teach or suggest, when taken either alone or in combination, a liquid crystal display device and a drive control method for a liquid crystal display device including:

a driver which supplies the plurality of signal lines with a display signal in a field period, and which supplies the plurality of scanning lines with a scanning signal, to apply the display signal to the plurality of display pixels; and/or

wherein the driver includes means which supplies a predetermined initialization signal voltage to the signal line

and supplies a first gate pulse as the scanning signal to the scanning line, thereby applying the initialization signal to the display pixel, and thereafter supplies the display signal to the signal lines and supplies a second gate pulse as the scanning signal to the scanning line, whereby applying the display signal to the display pixel, at least one signal application period is set within the field period (see claim 1, lines 8 - 20 and claim 12, lines 13 - 22).

In view of the foregoing, claims 1 and 12, and claims 2-11 and 13-19 which are either directly or indirectly dependent on claim 1 or 12, are patentable over the cited references when taken either alone under 35 USC 102 or in combination under 35 USC 103.

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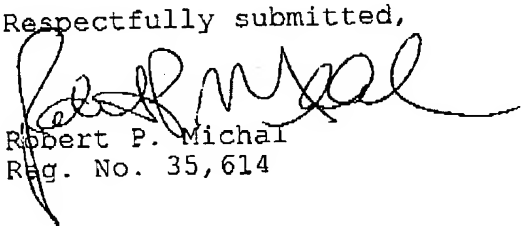
Entry of this Amendment, allowance of the claims and the passing of this application to issue are respectfully solicited.

If the Examiner disagrees with any of the foregoing, the Examiner is respectfully requested to point out where there is support for a contrary view.

If the Examiner has any comments, questions, objections or recommendations, the Examiner is invited to telephone the undersigned at the telephone number given below for prompt action.

Respectfully submitted,



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